PLANTATIONS
IN
TAMIL NADU

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PREFACE

The plantation industry in the State is small in its hectarage but widespread in its products, covering tea, coffee, rubber, cinchona and cashew. Its future prospects include mesta, sugar beet and sunflower.

This study is addressed to the operational efficiency of small and medium plantations in Tamil Nadu about which the State Government is concerned. In the State's planned expansion of 2 per cent per annum in tea estates, 3 per cent in coffee plantations and the new crops plantations, including the 3 lakh hectares of sunflower referred to earlier, the small and medium plantations should have their appropriate share and play their full part. On the basis of their predominance in this State, their capacity for earning foreign exchange, the availability of data, and in the interest of making the study manageable, it is largely concentrated on two of the plantation crops—tea and coffee—with limited comparative references to rubber. The concern for the small producer accounts for the concentration in the study on the small and medium plantations. As a working definition, a small plantation is taken as a holding of the 5 to 50 hectares size and a medium plantation holding of the 50-200 hectares size.

In principle, small holdings should also include the unviable 0 to 5 hectares size plantations, as well as the 5 to 50 hectares. If that is done, a disturbing trend that is seen during the sixties is a 40 per cent increase in the area covered by the uneconomic 0—5 hectares holding, against a shrinkage of the small plantations hectarage in the 5-50 size from 6,254 to 5,604 as well as that of the medium holdings from 15,427 to 13,271. Also the large holdings defined as those above 200 hectares increased by 1496 hectares during this period. A general conclusion that is suggested by this aspect of the study is a low

operational efficiency of small and medium plantations who have been forced to join the unviable plantation group or sell a part or all of their plantations to the large planters or divert their land to the production of non-plantation crops during the sixties. Using the increase of hectarage in each of these three areas as the norm, the major development has been that of the small and medium planters joining the ranks of the uneconomic holding owners, followed by sale of part or all of their holdings to the large plantations and in the third and last place the diversion to other uses.

Some more direct criteria to measure the operational efficiency of small and medium plantations used in this study are (a) the cost structure, (b) the price factor and (c) the tax paid. The cost structure analysis raises complex issues wherein the small and medium planters are at a relative advantage over large planters in certain costs such as those of cultivation and gathering but are at a comparative disadvantage on all other costs. That is, the developing plantation technology favours the small and medium planter at the cultivation and harvesting stage which accounts for the relatively slower rise in their costs over those of the large planter. But at the end stage of manufacturing, distribution and sale, the small and medium planter is at a disadvantage. Overall the cost structure analysis indicates that the small and medium planter operational efficiency is lower than that of the large planter. To equate the performance, they need help at the processing and marketing stages.

The price factor and the tax impact as an indicator of operational efficiency do not reveal anything that is not the resultant of the cost structure analysis. The small planters and to some extent the medium planters produce inferior varieties of tea, are forced to sell them through intermediaries and so receive low prices. Similarly, the tax paid per hectare bears more heavily on the small and medium units than on the large plantations and are a drag on improving the operational efficiency of small and medium plantations.

Against this general kind of low declining operational efficiency of small and medium plantations in Tamil Nadu, a series of recommendations are addressed to the small and medium plantation owners, to the plantation industry and to the government with a view to increasing and improving the productivity of the small and medium planters. The small and medium planters are advised to form themselves into plantation co-operatives to achieve some of the economics of sale, and have direct access to better seeds and fertilisers, and to market their produce through the co-operatives or through written contracts with large planters. The plantation industry, it is recommended, should set up a small planters' advisory and consulting service to advise the small planter on a system of mixed cropping developing animal husbandry in such small size units and organising educational and management training for small planters. The government action to help the former is to facilitate access to credit by the small and medium planter of the order of Rs. 1 crore, review of the tax burden on this size-group, set up Rs. 1 crore revolving fund for land development, intensify the plantation R and D programme, and for all these purposes set up and run a Planning and Operational Board for small and medium planters. The total cost of all these recommendation is Rs. 2 crores capital and Rs. 150 lakhs recurring costs. The theme of the study is that the operational efficiency of small and medium planters is low but can and should be raised by the three fold action recommended in the interest of the small producer—the weak section in this sector of industry—and to increase the exchange earnings of the industry for the country.

The study was started by Meena Kumari, a research assistant of the Institute who began the gathering of the data for the study. It was taken up for further data collection and analysis by R. Ethiraj, a research officer of the Institute. In making this study, the research officers had the full co-operation of the United Planters Association of South India and particularly its General Secretary, Mr. V. M. Chacko, to whom grateful thanks are expressed. The government of Tamil Nadu, particularly the departments of Agriculture, Statistics and

Taxes also made available their collaboration which is gratefully acknowledged. The analysis and opinions expressed, however, are the responsibility of the research officer, Mr. R. Ethiraj. I commend the study and its recommendations to UPASI, the small and medium planters and the Government of Tamil Nadu for their attention and appropriate action.

Malcolm S Adiseshiah

CONTENTS

CHAPTER 1

NATURE OF THE INDUSTRY AND SCOPE OF STUDY

"The Plantation Programme has a considerable significance in the overall export effort and will need particular attention for effective implementation."

In India, there are two types of crops in agriculture; food crops such as rice, wheat, etc. and commercial crops such as tea, coffee, rubber, cardamom, eucalyptus, cashew, casuarina, etc. The term plantation which applies to estates growing tea, coffee rubber, etc. is in use largely because of its association of these crops from its earliest days in India with British ownership and management. Plantation crops cover about 0.6 per cent of the cultivated land in the country and produce about 4 per cent of the total national income from agriculture. They provide employment to over 12 lakhs persons. Tea and coffee are grown both in North-East and South India. In Tamil Nadu, the plantation industries are concentrated in the hill areas of the State (see Appendices 31 and 34). These cover about 75,000 hectares or 1.25 per cent of the cultivated land in the State and employ 2.5 lakhs persons. The total investment of the industry is Rs. 120 crores and its annual produce is valued at Rs. 48 crores. There are 50,851 coffee estates in India, covering a total area of 136,453 hectares, out of which 1,820 estates are large and 49,031 estates are small.

Tea was grown in small plots in the Nilgiri Hills as early as 1854. Coffee was grown in the Wynaads even earlier. The Planters' Association of Wynaad was probably organised in 1857 and the Nilgiri Planters' Association traces its origin to 1871. The United Planters' Association of Southern India (UPASI) came into being when some 13 district associations formed themselves into the United Planters' Association of Southern India in 1893. The emergence and growth of the association

of planters has a formative influence on the development and growth of the plantation industry of today.

The association assists, co-ordinates and organises exchange of ideas among those who are engaged in the industry and provides leadership to it. The emergence of corporate growth structure encouraged the professional managerial group in the industry. Such growth led to the consolidation of small estates into large corporate groups. This shift in ownership gave greater stability, wider public ownership of shares and a recognisable management system. By 1948, several non-Indian properties were sold to Indian nationals and in some cases, sterling companies were converted into rupee companies. In 1956, with the reorganisation of the States, further changes took place in the area under plantation crops. In Tamil Nadu, for instance, about 5,600 hectares of tea, 1,170 hectares of coffee and some rubber grown in the former Malabar district including Palghat and Nelliampathies went to Kerala State and some tea and rubber areas in the Kanyakumari came under Tamil Nadu.

The plantation crops have gained a significant place in world commerce. To all producing nations they have brought employment, exports, widespread use of the once unproductive waste land and in some cases problems of immigrant labour. Many countries have taken to plantation of tea since the end of the Second World War either to meet their own internal demand or to produce for export. Among them are Iran, Turkey, USSR, Australia, Portugal and the East African countries (see Appendices 14 and 15). A number of Indian companies and small planters have now gone into tea and coffee plantation. Over the years, the consumption of tea and coffee has been increasing in India.

The tea and coffee net substantial foreign exchange for the national exchequer (see Appendices 13 and 23). The foreign exchange earnings of tea constituted 8.79 per cent of the total foreign exchange earnings of India during 1969. These plantation crops besides earning foreign exchange support many ancillary industries, such as plywood for special packing cases, transport, etc. The total area under tea in India in 1971 was

3,54,000 hectares and produced 4,22,000 tonnes worth Rs. 275 crores. India's exports which constituted about 45 per cent of world's exports of tea in 1950 came down to 34 per cent in 1971. Africa's share increased from 7.1 per cent to 11.8 per cent. The export earnings of coffee for 1972-73 was Rs. 32.93 crores. But India produces only 2 per cent of world coffee output and accounts for 1 per cent of total coffee exports. With the removal of export quotas and rising prices there is need to put in intensive efforts to export these commodities.

Special Features

The locational features of plantation crops exclude them from competition with peasant agriculture in the plains. Their employment potential is greater. Plantation crops contribute substantial revenues to the State and Union exchequers. And as noted earlier these crops earn sizable foreign exchange through exports. In the hill areas the plantation crops with the heavy obligatory outlay on labour welfare facilities, permanent fixtures and field development call for high capital investment. The most important contribution which is relevant to the future development in agriculture as a whole is the management system evolved in the plantations.

Difference between North-East Indian Tea Industry and South Indian Tea Industry

In the north, there are large units with only a small number of small holdings, whereas in the south, the large holdings are small in number and several crops are grown, such as tea, coffee, rubber, cardamom, etc. on small holdings (see Appendices 4, 18 and 25).

Small Tea Growers in India

During the financial year ending March 31, 1969, the total land under tea in India was 3,48,927.61 acres. Of this 2,74,880.36 acres that is 1,11287.70 hectares was in North India and the remaining, that is 74,046.98 acres was in South India. Plantations of 5 hectares (12.35 acres) and below in North India are but a negligible fraction of the total land under tea plantation. In the South, estates with less than 5 hectares holdings are

9.7 per cent of the total area under tea. Tamil Nadu has the largest (5745.91 hectares or 14,192.39 acres of the total land) area covered by estates in the size class 5 hectares and below.

Small Holdings in South India

In the South, the small growers' emergence is a fairly recent development. Their growth was stimulated only partly by ceiling legislation in the different States. Two other reasons were the transferring of land from fluctuating annual crops to more stable permanent crops and the availability of uncultivated land in the Malnadu or hill tracts of three Southern States, Tamil Nadu, Karnataka and Kerala.

The small holder in plantation crops is closer to the village farmer in his understanding and application of technology or in the observance of operation systems and organisation than to the larger planter in the neighbourhood although both grow the same crops. The demonstration effect of the large estate on smallholdings is not significant and is on the decline. All the small holders do not show the same technological or operational deficiencies. The high cost of machinery discourages the proliferation of small growers. Most of the small holdings are family-owned and owner-managed. Employment of family labour is limited and the engagement of hired labour is widespread but casual. The small grower does not specialise in mono-crop planting but generally grows all such crops as his holdings would permit from the agro-climatical point of view. The small growers are not organised in common service or protection associations. They resort to manual processing of the crops and only a few have access to modern technology. Due to this reason they have to sell in bulk or lots with indifferent grading and are more heavily dependent on middlemen for the disposal of their crops.

Problem

The problem to which the monograph addresses itself is that of examining the operational efficiency of small and medium plantations in light of the following issues. It studies the major problems that confront the small and medium planters in Tamil Nadu, Along with this, the question as to

whether large plantations are more efficient than the small and medium plantations is analysed.

Scope

The study confines itself to the State of Tamil Nadu. Special attention in the analysis has been given to certain crops only, using as a working criterion the capacity of earning foreign exchange. On this basis, tea and coffee have been studied. The scope of the study is thus limited to one State and to certain essential crops, tea and coffee. Further, the introduction of modern plantation practices and processing tchnieques which could improve the production are also examined.

Methodology

One method of estimating the efficiency of operations in agriculture is productivity per hectare/acre and another is cost per hectare/acre. To determine the efficiency of operation in plantation industry, the productivity per hectare and cost per hectare has been used for tea industry and productivity per hectare for the coffee industry. The study utilises the secondary data taken from the United Planters Association of Southern India (UPASI), the Department of Agriculture and the Department of Statistics. On the basis of this data, a correlation study has been made for small and medium planters in the tea industry. It covers a 10 year period between 1960 and 1970. The year 1960 has been taken as the base year for tea. For coffee 1965-66 sizewise area and production are used and for yield rate, the years 1959-'60, 1962-'63 and 1965-'66. Further, for coffee, the 1967-'68 statistical data have been used. Regarding the area of rubber the 1970-'71 records have been used.

The cost analysis for the tea industry includes only the medium and large holdings. The years under study are 1960-1970. To compare the internal and international price structure, both Cochin and Coonoor prices have been taken as internal market price and for international price structure the London, U. S. A. and Singapore prices have been considered. The tax effect is studied only for coffee and tea and in this context the agricultural income tax has been used for analytical study due to non-availability of information about other taxes. The study con-

centrates on operational efficiency and its related factors in depth.

Concepts Defined

Operational Efficiency : refers to the effective working capacity and results of the industry.

Efficiency : is defined in terms of yield per hectare and cost per hectare.

Cost : while costs should include all manufacturing, selling, establishment and transport, in this study only the manufacturing and selling costs have been used.

Small Planters : defined as those who hold between 5 and 50 hectares.

Medium Planters : defined as those who hold between 50 and 200 hectares.

Large Planters: defined as holdings of 200 hectares and above.

Internal price : prices at Cochin and Coonoor market.

International Price : prices at International markets—London, New York, and Singapore.

Limitations

A major limitation of the study is that it makes use of only secondary data available from official sources. Normally, this secondary data should have been cross checked through field investigations in order to lend greater support to problem identification and policy presentation. Such field investigations have, however, not been carried out.

Another limitation is the non-availability of primary data for certain selected districts. Normally detailed district surveys are a necessary concommitant for studies in Agricultural Economics especially when a high degree of quantification is absent. Such surveys also have not been organised.

While analysing certain aspects in this study, certain assumptions have been made which may hold good only for the present study but may not provide an adequate base for future analysis or studies.

For coffee, due to the non-availability of time series data for 1960-'70, this study has taken one year's data that is 1965-'66 for the area and production; and for yield rate, the following years are taken into consideration: 1959-'60, 1962-'63 and 1965-'66.

A constraint which has been identified in this analysis is that the small and medium planters cannot be studied as separate entities but should be considered along with large planters in the plantation industry.

The statistical details for rubber plantations in Tamil Nadu are not available. Hence the study is restricted in its focus to the tea and coffee plantation industry.

Due to non-availability of data for small planters' cost structure, the analysis has had to adapt the structures of the medium and large planters to small ones.

Objectives

The objectives of this monograph are :

To examine the operational efficiency of the small and medium planters in Tamil Nadu.

To examine whether the small and marginal planters have sufficient area for cultivation and replantation.

To identify how far the prices and taxes affect these industries as a whole.

To identify the extent to which the small planters have the necessary knowledge in cultivation and to identify their problems and make proposals to mitigate them.

To recommend to the State Government and the industry new or additional services to increase the output of small indu

stries in order to augment the plantation income, the revenue to the Government and exports.

The Monograph in Outline

The monograph has been cast in the following manner :

The first chapter deals with the nature of the industry and methodology of the study. The second chapter examines the area, yield and production of tea and coffee. The area under rubber is also analysed. The third chapter deals with cost and price structures and total agricultural income tax on the tea and coffee plantations. The fourth chapter describes the problems of small, medium and large plantations. On the basis of the findings and analyses, cerain policy recommendations have been outlined in the fifth and final chapter.

CHAPTER 2

PLANTATION AREA AND PRODUCTION

This chapter examines the area, yield and production of the tea and coffee plantation industry in Tamil Nadu. Along with this, the area under rubber plantation is analysed with a view to examining how far the small and medium planters are operating the plantation industry efficiently.

There are several problems confronting the small and medium planters in the plantation industry, of which the area or size of the plantation is one of the factors which limits the production and efficiency of operation of small and medium planters in Tamil Nadu. From Table 1, the problem of inadequate land for replanting and other cultivation purposes of the small and medium planters can be seen.

TABLE 1—**Tea**

Area as on the 31st March of	Small Below 5 hectares	Small 5 to 50 hectares	Medium 50 to 200 hectares	Large Above 200 hectares
1960	5,064	6,254	15,427	47,121
1961	5,546	6,320	14,969	47,388
1962	6,211	5,229	14,336	48,484
1963	6,348	5,328	13,908	48,952
1964	6,391	5,231	13,880	49,001
1965	6,455	5,336	13,369	49,391
1966	6,750	5,273	13,408	49,467
1967	6,827	5,292	13,509	49,197
1968	6,829	5,426	13,367	48,829
1969	7,179	5,516	12,715	48,637
1970	7,197	5,604	13,271	47,661

Source : *UPASI*

Table 1 shows that the small planters, that is those with 0.50 to 50 hectares holdings had 11,318 hectares during the year 1960, and in 1970 they had increased to 12,801 hectares. Within this group the planters who hold between 5 and 50 hectares had 5,604 hectares in 1970, which was less than the number of hectares held in 1960—6,254 hectares. Further, according to the data, it may be noted that the small holdings are increasing in number. In 1960, those who were in the group of 0.5 to 5 hectares held only 5,064 hectares but increased in 1970 to 7,197 hectares.

Table 1 also reveals how the area of the medium cultivators declined during the period between 1960 and 1970. It appears from the data that the medium planters experience the same difficulties as the small planters in extending their area under tea cultivation. In 1960, planters who had holdings between 50 and 200 hectares had 15,427 hectares but in 1970 the total number of hectares under this head stood at 13,271.

Table 1 also shows that the large planters are able to reap the increasing economies of scale in their operation and have sufficient area for replanting and for other operational purposes. During the year 1960, they had 47,121 hectares which gradually increased and stood at 47,661 in 1970.

The above analysis indicates that the operational efficiency of the small and medium planters faces the constraint of the inadequacy of area for their replanting and extension activities. This constraint operates within the fact of the decline in the total area under tea plantation in Tamil Nadu. In 1960 the area was 73,866 hectares which declined to 73,733 hectares in 1970.

Production

The operational efficiency of any industry which is based on agricultural raw materials can be analysed in terms of production, yield and costs. The production of small, medium and large tea planters is set forth in the table below.

TABLE 2—**Production : Tea (in '000 kg.)**

Years	200 hectares and above	50-200 hectares	5-50 hectares
1960	53,576	13,564	2,623
1961	54,905	14.841	1,752
1962	51,862	13.619	1,913
1963	61,786	14,852	2,366
1964	57,140	13,062	2,071
1965	65,751	14,674	2,008
1966	66,830	13,616	2,016
1967	63,645	13,292	2,392
1968	64,810	11,706	2,149
1969	67,232	14,560	1,927
1970	70,626	14,542	2,243

Source : *UPASI*

From Table 2, it is seen that in 1960 the small holdings ranging between 5 and 50 hectares have produced 2,623 thousand kilograms of tea. The same group produced 2,243 thousand kilograms in 1970. There was both a fluctuating and declining trend in production during the decade 1960-1970.

On the other hand, the medium planters (50-200 hectares) produced 13,564 thousand kilograms in 1960 and in the year 1970, their production went upto 14,542 thousand kilograms, an increase of about a thousand kilograms.

In the same industry, the large planters produced 53,576 thousand kilograms in the year 1960. They produced 70,626 thousand kilograms during the year 1970 showing a significant improvement in production.

Thus from the point of view of total output, the small planters produce less than the medium and large planters, which is a further indication that the small planters' efficiency needs improvement.

A corollary measure of the efficiency is the yield rate of tea in the State given in Table 3.

TABLE 3—**Yield : Tea** *(kg/hec.)*

Years	200 hectares and above	50-200 hectares	5-50 hectares
1960	1,130	906	415
1961	1,132	1.035	335
1962	1,059	979	365
1963	1.261	1,070	452
1964	1.157	977	388
1965	1.329	1,094	381
1966	1,358	1,008	381
1967	1.303	992	441
1968	1,333	921	390
1969	1,411	1,097	344
1970	1,470	1,166	394

Source : *UPASI*

Table 3 shows that the yield rate of small planters in the tea industry during the year 1960 which was 415 kilograms per hectare fluctuated and went down to 394 kilograms per hectare in 1970. *Per contra* the medium planters who averaged 906 kilograms per hectare in 1960, also went through ups and downs but achieved 1,166 kilograms per hectare in 1970. Even more, the large planters in the same industry sheared 1,130 kilograms per hectare in the year 1960 moved steadily upward and in 1970 they achieved the yield rate of 1,470 kilograms per hectare.

The small planters' efficiency is low as their yield is only 21 kilograms per hectare during the decade 1960-1970, while the medium planters achieved a yield rate of 260 kilograms per hectare during the same decade, and the large planters achieved a yield rate of 340 kilograms per hectare during the decade.

The yield anaysis reinforces the conclusion that the operational efficiency of small planters is lower than that of the medium and large planters.

Table 4 sets forth, for one year 1967-68 the data of the size group of coffee plantations in Tami Nadu.

TABLE 4—**Size Groups : Coffee—1967-68**

	Size Groups	Number of units	(Total)	Hectares	(Total)
Small	Below 2 hectares	6,502		3.431	
	2 to 4 hectares	793		2.224	
	4 to 10 hectares	579		3.710	
	10 to 20 hectares	100		1 477	
	20 to 40 hectares	63	8.037	1.749	12,591
Medium	40 to 60 hectares	29		1.382	
	60 to 80 hectares	17	46	1.156	2,538
Large	80 to 100 hectares	15		1.140	
	100 and above	30	43	5.880	7.020

Source : *Coffee Board*

According to the table the small planters number 8,037 units, and the total area of their holdings is 12.591 hectares. The average holding per small unit stands at 1.94 hectares. Medium planters total 46 units, with an area of 2,538 hectares. Their average per unit is 55.17 hectares. The large planters total 43 units with 7,020 hectares as total area. Their average per unit is 163.26 hectares.

In light of the sharp variations of the size holding of small, medium and large planters, it would be instructive to analyse the output trends of these different size groups of coffee planters in the State.

TABLE 5—**Area and production: Coffee—1965-66**

	Size	Area (hect are)	Total	Percentage of area	Total	Production (tonnes)	Total	Percentage of Production	Total
Small	Between 0 acres and 5	21,470		16.65		5,419		8.49	
	5 and 10 ,,	13,763		10.67		5,205		8.15	
	10 and 25 ,,	21,622		16.76		9,119		14.28	
	25 and 50 ,,	8,741	65,596	6.78	50.86	5,138	24,881	8.04	38.96
Medium	50 and 100 ,,	11,164		8.66		6,015		9.42	
	100 and 150 ,,	8,591		6.66		5,068		94	
	150 and 200 ,,	7,152	26,907	5.54	20.86	4,153	15,236	6.50	23.86
Large	200 and 250 ,,	6,353		4.92		4,584		7.18	
	250 and above	26,470	32,823	20.52	25.44	18,361	22,945	28.75	35.93

Source : *Future of Indian Coffee, Coffee Board*

According to Table 5, in which for the year 1965-66, area and production have been taken into consideration, the small planters, that is, those who hold the size of land ranging between 5 and 50 hectares have a total area of 65,596 hectares. The percentage of this area to the total is 50.86. The production of small planters is 24,881 tonnes giving a percentage of 38.96 of total coffee production. The wide gap between the two percentages—area and output—for the small planters is marked and significant.

The medium planters who are in the group of 50-200 hectares with a total area of 26,907 hectares produced 15,236 tonnes of coffee. Their area total percentage and output total percentage is at 20.86 of the total area and 23.86 of the total production respectively. For the medium planters the production percentage is marginally higher than their area percentage.

The large planters have 32,823 hectares as their total area, for which their production is 22,945 tonnes. The total percentage of area is 25.44 and their total percentage of production is 35.93. The presumption that the large planters operate their industries more efficiently than the small and medium planters is supported by the output percentage of the former significantly surpassing their area percentage.

Yield

Another method of analysing the operational efficiency is yield per hectare of the crop.

TABLE 6—**Yield (kg./hectare)**

Size group	1959-60	1962-63	1965-66
Below 2 hectares	257·06	285·33	252·39
2 to 4 ,,	246 81	420·10	373·19
4 to 10 ,,	371·40	575·61	421·76
10 to 20 ,,	416·69	387·21	587·79
20 to 40 ,,	439·33	403·70	538·79
40 to 60 ,,	497·27	459·89	589·91
60 to 80 ,,	566 22	493·69	580 67
80 to 100 ,,	650·90	671 61	721·55
100 and above	589 07	518 92	693·65

Source : *Future of Indian Coffee*

In Table 6, the yield rates have been taken into consideration for the years 1959-60, 1962-63 and 1965-66. Accordingly, it may be noted that the yield of the small, medium and large holdings increases as the size of holdings increases. When the size of holdings is small the yield is small. The yield of the group 2 hectares and below, during the year 1959-60 was 257.60 kg. declining to 252.39 kg. per hectare in 1965-66. The group between 2 and 4 hectares had a yield of 246.81 kg. per hectare in 1959-60, and 373.19 kg. per hectare during 1965-66. The group 4-10 hectares had 371.40 kg. per hectare in 1959-60 and achieved 421.76 kg. per hectare in 1965-66. The holdings between 10-20 hectares in 1959-60 recorded 416.69 kg. per hectare, which increased to 537.79 kilograms per hectare in 1965-66. The group 20-40 achieved 439.33 kilograms per hectare in 1959-60 and 538.79 kilograms per hectare in 1965-66. The group 40-60 yielded 497.27 kilograms per hectare in 1959.60 and 589.91 kilograms per hectare in 1965-66. The holdings between 60-80 achieved 566.22 kilograms per hectare in 1959-60 and 580.67 kilograms per hectare in 1965-66. The size group 80-100 achieved 650.90 kilograms per hectare in 1959-60 and 721.55 kilograms per hectare in 1965-66. The largest size group 100 and above registered the yield of 539.07 kilograms per hectare in 1959-60 and 693.65 kilograms per hectare in 1965-66.

When comparing the 1962-63 yield data with the 1965-66 period, the size groups below 2 hectares, 2 to 4 hectares and 4 to 10 hectares registered declining trends, which may be an efficiency index of small holdings relative to that of medium and large ones. The groups ranging between 10 hectares and 100 hectares show the increasing trend in the yield of the crop. It may be noted, however, that 100 hectares and above registers a declining trend as between 1959-60 and 1962-63 which may be an indicator of the dis-economies of scale of too large a holding, a possibility not correlated to the lower percentage yield of this size group, in all three years compared to the 80-100 hectares.

As indicated above the small planters, viz., those who are in, the size group of below 2 hectares to 40 hectares obtain a lesser yield than the medium and large planters. The medium planters

who are in the group between 40 and 80 hectares increased their yield to a considerable extent, among whom the 40—60 hectares group achieved a higher yield than the 60—80 hectares group. Among the large planters, the 80 to 100 hectare holdings achieved a higher yield than the 100 and above hectares group.

It thus appears that the small holdings' operational efficiency is not satisfactory in the coffee industry and some degree of size optimality is essential for increased per hectare output.

Rubber

Rubber plantations in the State present a similar picture as may be seen in Table 7.

TABLE 7

Size Group	Number		Hectares	
Small				
2 hectares and below	1,853		122	
Between 2 and 4 hectares	302		794	
Between 4 and 6 hectares	122		560	
Between 6 and 10 hectares	75		553	
Between 10 and 40 hectares	79	2,431 units	1,211	3,240
Medium				
Between 40 and 200 hectares	24	24 units	1,867	1,867
Large				
Between 200 and 400 hectares	4		1,036	
Between 400 and 600 hectares	3		1,271	
Between 600 and 800 hectares	—		—	
Above 800 hectares	1	8 units	1,503	3,810

Source : *Rubber Board.*

The table shows that the small holdings ranging from 2 to 40 hectares consist of 2,431 planters holding 3,240 hectares, with an average size of 1.33 hectares per unit.

The medium planters (40—200 hectares) comprise 24 units cultivating 1,867 hectares with an average size of 77.79 hectares per unit.

The large planters number 8 units with 3,810 hectares, and an average size 476.25 hectares per unit.

Here again the small planters, particularly the group of 2 hectares and below, who number 1,853 units and hold 122 hectares, are at the bottom of the output scale. To improve the efficiency of their operations, a larger area and improved techniques of cultivation are needed. The correlation between size of the plantation and yield per hectare rests *inter alia* on the replantation needs of rubber plantations. Plantation crops have to be replanted regularly in a new area for increasing yield. When the area is small, the extension and replantation activities are hampered, with deleterious effects on operational efficiency.

A Co-efficient of Correlation Model (Tea—Medium and Small)

The co-efficient of correlation model which is designed here examines the proposed relationship between the area and yield of small and medium planters in the tea plantation industry.

Small	5—50 hect.	Medium	50—200 hect.
Area (hect.)	Yield (kg./hect.)	Area (hect.)	Yield (kg./hect.)
6,254	415	15,427	906
6,320	335	14,969	1,035
5,229	365	14,336	979
5,328	452	13,908	1,070
5,231	388	13,880	977
5,336	381	13,369	1,094

5,273	381	13,408	1,008
5,292	441	13,509	992
5,426	390	13,397	921
5,516	344	12,715	921
5,604	394	13,271	1,166

To establish the co-efficient of correlation, the following formula is used :

$$r = \frac{P}{\sigma X \ \sigma Y}$$

P = the product moment between the two variables X and Y

σX = Standard deviation of product 'X'

σY = Standard deviation of product 'Y'

r = Co-efficient of correlation.

Medium

$X-\bar{X}$	$Y-\bar{Y}$	X^2	Y^2	XY
—	—	nil	67,600	nil
nil	260	2,09,754	17,161	59,998
458	131	11,91,372	34,969	2,04,017
1,091	187	23,07,361	9,216	1,45,824
1,519	96	23,93,209	35,721	2,92,383
1,547	189	42,35,364	5,184	1,48,176
2,058	72	40,76,361	24,964	4,30,114
2,019	158	36,78,724	30,276	3,33,732
1,918	174	41,20,900	60,1025	4,97,350
2,030	245	73,54,944	4,751	1,87,128
2,712	69	46,48,336	nil	nil
2,156	nil	—	—	—
17,508	1,581	3,60,18,335	2,89,877	22,98,721

Medium : XY = 22,98,721

$\Sigma X - \bar{X}$ = 17,508

$\Sigma Y - \bar{Y}$ = 1,581

Note : $\bar{X}$ and $\bar{Y}$ are "Assumed Mean".

Small :

$X-\bar{X}$	$Y-\bar{Y}$	X^2	Y^2	XY
66	37	4,369	1,356	2,442
nil	117	nil	13,689	nil
1,091	87	11,90,281	7,569	94,917
992	nil	9,84,064	nil	nil
1,089	64	11,85,921	4,096	69,696
984	71	9,68,256	5,041	69,864
1,047	71	10,96,209	5,041	74,337
1,028	11	10,56,784	121	11,308
894	62	7,99,236	3,844	55,428
804	108	6,46,416	11,664	86,832
716	58	5,12,656	3,364	41,528
8,711	686	84,44,179	55,798	4,64,824

$XY = 4,64,824$ A = Assumed mean of area

$\Sigma X - \bar{X} = 8,711$

$\Sigma Y - \bar{Y} = 686$ B = Assumed mean of productiviy

To find out P :

$$P = \frac{1}{N}\Sigma(X-A)(Y-B) - \left[\frac{1}{N}\Sigma(X-A)\right]\left[\frac{1}{N}\Sigma(Y-B)\right]$$

To find out $\sigma\bar{X}$:

$$\sqrt{\frac{1}{N}\Sigma(X-A)^2 - \left[\frac{1}{N}\Sigma(X-A)\right]^2}$$

To find out σY :

$$\sqrt{\frac{1}{N}\Sigma(Y-B)^2 - \left[\frac{1}{N}\Sigma(Y-B)\right]^2}$$

Medium:

(1) $P = 2,08,974.63 - 2,28,766.42 = 19,791.79$

(2) $\sigma X = \sqrt{\frac{3,60,18,335}{11} - \left(\frac{-17,508}{11}\right)^2}$

$= \sqrt{32,74,394.09 - 25,33,317.89}$

$= \sqrt{7,41,076.20} = 272.22$

(3) $\sigma Y = \sqrt{\frac{2,89,877}{11} - \left(\frac{-1,581}{11}\right)^2}$

$= \sqrt{26,352,45 - 143.73}$

$= \sqrt{26,20,872} = 161.89$

$r = \frac{19,791.79}{272.22 \times 161.89} = 0.2330$

Small :

(1) $P = 42,256.73 - 49,383.73 = 7,127.00$

(2) $\sigma X = \sqrt{\frac{84,44,179}{11} - \left(\frac{(-8,711)}{11}\right)^2}$

$= \sqrt{7,67,652.64 - 6,27,121.45}$

$= \sqrt{1,40,531.19} = 374.87$

(3) $\sigma Y = \sqrt{\frac{55,798}{11} - \left(\frac{(-686)}{11}\right)^2}$

$= \sqrt{5,072.55 - 3,888.77}$

$= \sqrt{1,183.78} = 33.05$

(4) $r = \frac{7,127}{374.87 \times 33.05} = 0.1738$

The co-efficient of correlation of small and medium planters is small and not significant. The co-efficient of correlation of medium plantations is 0.2330 and the small ones is 0.1738. In medium plantations the correlation between area and yield is closer and significant.

CHAPTER 3
OPERATIONAL EFFICIENCY

The operational efficiency can also be examined from the view point of the cost of production in the plantation industry. Cost analysis is another device for measuring how well the plantation industry operates and what is the efficiency of the different groups in the industry. Further, this chapter in Section II examines how international prices affect internal prices and the impact of the agricultural income tax on the tea and coffee industry.

SECTION I

Cost analysis (Tea): There are several items included in the cost structure, namely, cultivation expenses, gathering costs, manufacturing costs, packing charges, selling expenses and general charges.

In Table 8 the medium and large industries' cost structures are analysed.

During the year 1963-64, the cultivation expenses of large planters stood at 53.22 paise/kg. and of medium planters at 59 paise/kg. whereas in the year 1969-70 the expenses of large planters had gone up to 74.68 paise/kg. and those of medium planters increased to 69 paise/kg. Here the proportionate cost increase of the large planters during the time period was higher than that of the medium planters.

The gathering expenses of large planters during the year 1963-64, was 64.46 paise/kg. and that of medium 70 paise/kg. but in the year 1969-70 it increased to 82.43 paise/kg. and 72 paise/kg. respectively. The same relative trend in the increase in this cost item may be noted.

The manufacturing cost during the year 1963-64 was 42.97 paise per kilogram for large and 44 paise per kilogram for

TABLE 8—**Cost Analysis (Tea) (in paise per kg.)**

Years	Cultivation Expenses	Gathering Crops	Manufacturing Costs	Packing Charges	Selling Expenses	General Charges	Grand Total
	L—M	L—M	L—M	L—M	L—M	L—M	L—M
1963—64	53.22 59.00	64.46 70.00	42.97 44.00	21.53 23.00	28.44 41.00	29.34 164.00	309.96 401.00
1964—65	51.17 65.00	67.17 61.00	42.99 45.00	21.79 23.00	26.55 67.00	92.36 160.00	302.03 421.00
1965—66	54.62 64.00	66.64 62.00	41.70 51.00	22.25 23.00	26.61 76.00	93.85 140.00	305.67 416.00
1966—67	63.31 55.00	74.11 63.00	41.66 54.00	22.97 28.00	27.04 85.00	101.94 144.00	321.03 429.00
1967—68	76.02 59.00	78.16 67.00	45.05 52.00	26.18 27.00	37.88 95.00	121.65 155.00	384.94 455.00
1968—69	80.56 61.00	79.99 68.00	46.83 55.00	28.25 30.00	42.41 67.00	128.01 198.00	406.06 379.00
1969—70	74.68 69.00	82.43 72.00	50.69 67.00	28.65 29.00	39.34 60.00	102.77 88.00	378.56 385.00

Note : L = Large
M = Medium

Source : *UPASI*

medium. But during the year 1969-70 it increased to 50.69 paise per kilogram for large and 67 paise per kilogram for medium. Here while both the costs of medium and large planters have risen continuously since the 1960 the medium planters' costs have risen at a much faster rate than those of the large planters.

The selling expenses of the medium planters amounted to 41 paise per kilogram and that of large planters 28.44 paise in the year 1963-64, while during the year 1969-70 the medium and large planters' expenses were 60 paise per kilogram and 39.34 paise per kilogram respectively. Here is an obvious indication of the medium planters being at a comparative disadvantage, their selling expenses being higher than similar expenses incurred by the large planters.

The general charges of large planters amounted to 29.34 paise per kilogram in the year 1963-64 but rose sharply to 102.77 paise per killogram during the year 1969-70. On the other hand, the medium planters incurred 164 paise per kilogram as general charges in the year 1963-64 which was reduced to 68 paise per kilogram in 1969-70. Here the fact that the large planters incur higher general charges than the medium planters means that as the size of the plantation increases, the establishment and maintenance costs of the unit seem to go up.

On the total costs of the large and medium planters in 1963-64 the large planters incurred 309.36 paise per kilogram and the medium planters, 401.00 paise per kilogram. In 1969-70 the large planters' total costs went up to 378.56 paise per kilogram. Medium planters' total costs on the other hand declined from 401 paise per kilogram to 385 paise per kilogram during the same time period.

Thus the medium planters produce at higher absolute and faster rising manufacturing, selling and packing costs than the large planters. If the operational effciency of the industry is seen in terms of the cost elements the medium planters are at a disadvantage relative to the large ones. In the absence of statistical costs data for the small planters it may be presumed

that the absolute and relative costs of small planters are higher than those of the medium planters and to that extent their operational efficiency is even lower than that of the medium planters. An evidence for this presumption is that the small planters having poor marketing facilities and using backward manufacturing techniques are dependent on large planters for their marketing channels and finance.

SECTION II

Prices

In this section, the international price and internal price of tea, coffee and rubber are analysed to examine whether the internal price has been influenced by the international price. The following tables set forth the appropriate data.

TABLE 9A—**Internal Prices (Tea)**
(Rupees per kg.)

Year	Cochin		Coonoor
	Leaf	Dust	
1960	4.70	4.32	N.A.
1961	4.68	4.45	N.A.
1962	4.58	3.75	N.A.
1963	4.65	4.25	4.17
1964	4.75	4.42	3.90
1965	4.85	4.53	3.82
1966	4.80	4.51	3.89
1967	5.79	5.04	4.97
1968	5.26	4.67	4.15
1969	5.12	4.63	4.29

Source : *UPASI (Special Meeting on Tea)*

TABLE 9B—**International Prices (Tea)**
(at London auctions)

Year	North India		South India		Ceylon		East Africa		All Teas	
	Sh	$	Sh	$	Sh	$	Sh	$	Sh	$
1960	10	10.49	8	9 09	11	0.03	7	9.76	10	2.14
1961	10	3.44	8	6.27	10	2.36	7	10.89	9	9.20
1962	11	1.60	8	1.25	10	3.30	7	1.87	9	10.61
1963	10	2.80	7	11.57	9	7.37	7	2.46	9	3.66
1964	10	0.42	8	5.12	9	10.72	7	4.67	9	5.43
1965	9	7.30	8	2.79	9	4.77	8	1.75	9	2.60
1966	9	6.95	7	6.48	9	4.17	7	0.73	8	11.72
1967	9	10.48	7	9.65	9	7.37	7	5.51	9	1.90
1968	8	11.28	7	9.17	9	0.69	8	1.18	8	8.56
1969	8	3.65	6	3.88	8	10.75	7	1.34	8	1.05

Source: *UPASI (Special Meeting on Tea)*

Price of Tea

The internal price of tea recorded in Table 9A shows both at Cochin and at Coonoor a fluctuating price situation. In 1963, the price at Cochin market was Rs. 4.65 per kilogram for leaf and Rs. 4.25 for dust and at Coonoor the dust price was Rs. 4.17 per kilogram. However, the prices in these two markets went up to Rs. 5.12 per kilo gram for leaf and Rs. 4.63 per kilogram for dust and at Coonoor to Rs. 4.29 per kilogram. Further, the price trend at the Cochin market tends to be higher than that in the Coonoor market.

In Table 9B, international price levels of teas from all major producing countries are set forth. Ceylon tea fetches the highest price, next to which is North Indian tea. The South Indian tea fetches lower prices than that of other countries. Further, Indian tea prices fluctuate in response to changes in the price of tea from other countries in the London market.

While comparing the internal market prices of tea, that is, Coonoor and Cochin market prices with prices prevailing in London, it is seen that the prices of the internal market move in the same direction as do the international market prices. In 1960 prices both internal and international were at a high level. They declined in the year 1961, between 1962—1966 there was little change in both the markets, but from 1966 onwards again the prices in internal and international markets started to decline. In 1966 the price at Coonoor was Rs. 3.89 for dust and at Cochin Rs. 4.80 and Rs. 4.51 for leaf and dust respectively. In the London market, in that year North Indian tea sold at 9 shillings or 6.95 dollars which was lower than the 1965 price of South Indian tea at 7 shillings or 6.48 dollars, Ceylon tea at 9 shillings or 4.17 dollars, African tea at 7 shillings or 8.73 dollars and all teas at 8 shillings or 11.72 dollars all of which represented declines. In 1969 the prices at Coonoor was Rs. 4.29 for dust and in Cochin Rs. 5.12 for leaf and Rs. 4.63 for dust. In the international market North Indian tea further declined to 8 shillings or 3.65 dollars, South Indian tea to 6 shillings or 3.88 dollars, Ceylon tea to 8 shillings or 10.75 dollars, African tea to 7 shillings or 1.34 dollars and all teas at 8 shillings or 1.05 dollars.

That internal tea prices are greatly influenced by international prices seems to stand out.

Further, the frequent price fluctuations affect both the foreign exchange earning of the country as well as the entire plantation industry of the size groups.

Price of Coffee (Internal and International)

The Tables 10A and 10B below record the relevant trend of the internal and international prices of coffee.

TABLE 10A—**Internal Prices (Coffee)** (Rs. per 50 kg.)

Year	Plantation A	Arabica Cherry	Robusta Cherry AB
1960	222.46	180.72	157.54
1961	229.45	189.27	152.94
1962	247.85	200.61	153.42
1963	247.19	210.73	176.78
1964	268.48	225.32	205.33
1965	270.32	235.87	231.17
1966	334.20	296.49	259.77
1967	313.50	274.50	226.75
1968	354.00	306.75	272.75
1969	337.50	282.75	269.25
1970	399.25	369.50	354.25

Source : *Coffee Statistics*; *Coffee Board.*

TABLE 10B—**International Prices (Coffee)**

Year	Brazil Santos		Colombia Mems		Uganda Native Std.	
	In US Cents perlb	In Rs. Per 50 kg.	In US Cents per lb	In Rs. Per 50 kg.	In US Cents per lb	In Rs. Per 50 kg.
1960	36.60	192.11	44.89	235.63	20.18	105.92
1961	36.01	189.02	43.62	228.97	18.48	97-00
1962	33.96	178.35	40.77	214.87	20.63	108.28
1963	34.11	179-12	39.55	207.68	27.86	146.24
1964	46.66	246.71	48.80	258.05	35.56	188.02
1965	44.71	236.42	48.49	256.38	31.12	164.54
1966	40.83	337.56	47.43	392.12	33.61	277.87
1967	37.82	312.67	41.94	346.74	33.51	277.04
1968	37.43	309.45	42.60	352.20	33.96	280.77
1969	40.76	336.98	44.99	381.95	33.17	274.23
1970	54.57	451.15	56.42	466.44	41.52	343.26

Source : *Coffee Statistics*; *Coffee Board.*

A scrutiny of Table 10A indicates that all varieties of coffee prices started to increase from the year 1964. During the year 1960, the price of Plantation A coffee was Rs. 222.46 per 50 kg., Arabica Cherry Rs. 180.72 per 50 kg. and Robusta Cherry was Rs. 157.54 per 50 kg. The prices went up to the highest level in 1970, when the Plantation A was Rs. 399.25 per 50 kg.. Arabica Cherry was Rs. 369.50 per 50 kg., and Robusta Cherry was Rs. 354.25 per 50 kg.

Comparing these internal prices with international prices, the close relationship between these two markets is indicated. In 1964, all the international market prices began to increase and internal prices also increased in the same direction. In 1964, the Brazil Santos was priced at Rs. 246.71 per 50 kg., Colombia Rs. 258.05 per 50 kg., and Uganda Native Standard Rs. 188.02 per 50 kg. In 1965 all the prices declined and fell again in 1967. Alongside, internal market prices also declined. In 1970, both the internal market prices and international market prices increased. In some years there was a marginal change in prices of the internal and international markets. At all times the frequent increase and decrease in prices which took place occurred simultaneously in both markets with little time lag.

Thus internal prices are to some extent related to the international price structure. This relationship affects the volume of exports and the foreign exchange earning capacity, and the income level of the planters as a whole, irrespective of their size groups.

Rubber

Turning next to rubber, Table 11 sets forth the internal and international prices of Rubber.

TABLE 11—**Internal and International Prices per 100 kg (Rubber)**

Year	Cochin (Rs.)	Singapore St. Dollars	London £	New York $
1960	325	238.3	29.53	84.21
1961	325	184.2	22.74	65.31
1962	325	172.4	21.40	62.96
1963	325	159.7	19.99	57.89
1964	325	150.2	18.92	55.65
1965	360	154.4	19.70	56.64
1966	591	144.1	18.23	52.08
1967	410	119.2	15.89	43.88
1968	436	117.1	17.25	43.74
1969	545	153.9	23.10	57.75
1970	489	124.4	18.70	46.25

Source : *The Rubber Board*

In light of the information in the table the relationship between the internal and international prices may be reviewed.

In the above table the internal price is seen to be constant till 1964. While the international price was steadily declining. From 1965 onwards the internal price started to increase with fluctuations in the following years, that is, it declined in 1967-68, increased in 1969 and declined again in 1970.

In the international market the high initial price in 1960 declined sharply till 1965 when it started to increase only to decline again between 1966 and 1968. In 1969, the prices recovered but fell again steeply in 1970.

SECTION III

Agricultural Income Tax

The impact of the agricultural income tax on the plantations may be viewed as an element in the measure of their operational efficiency. Equally it can be regarded as a dissaving factor from the point of view of the individual planter. The total income tax paid during the sixties by the

tea and coffee plantations in the State is set forth in the follwing table.

TABLE 12—**Agricultural Income Tax (Total)**

Year	Tea Rs.	Coffee Rs.
1961-62	65,83,072	N.A.
1962-63	56,70,789	N.A.
1963-64	65,73,609	N.A.
1964-65	58,40,495	9,82,643
1965-66	60,80,113	13,18,378
1966-67	90,25,621	13,21,930
1967-68	82.80,570	12,91,672
1968-69	87,37,603	15,52,306
1969-70	79,03,734	41,63,453

Source : *Perspective Plan for Tamil Nadu, Task Force Report on Agriculture.*

It is necessary to examine how this total tax paid breaks down between small, medium and large plantations in the State. For this purpose, an analysis of the tax paid by small planters as defined in Chapter 1, that is, those holding between 5 and 50 hectares is made in Tables 13, 14, and 15, below. In tables 13 and 14 a distinction is made between returned cases where the tax to be paid is still under discussion and negotiation with the tax authorities and completed cases where the payment has been settled and paid.

TABLE 13—**Agricultural Income Tax** (By Units)

Hectares	10 to 15	15 to 20	20 to 25	25 to 30	30 to 40	40 to 50
Returned Cases (Nos)	13	6	5	3	5	4
Completed Cases (Nos)	296	532	228	164	98	35
Total	309	538	233	167	103	39

Source : *Agricultural Income Tax Records*

Though the number of returned cases is small compared to the number of completed cases, the number of the former should be further reduced, as uncertainty regarding the tax to be paid reduces the operational efficiency of the planters. It will be noted that among small planters the 10 to 20 hectares units form over 65 per cent of the total number of returned cases of small units with 15 to 20 hectares forming over 40 per cent of the total.

TABLE 14—**Total Agricultural Income Tax : In rupees.**

(Hectares)	10 to 15	15 to 20	20 to 25	25 to 30	30 to 40	40 to 50
Returned cases	4714	363	1017	114,	1481	3176
Completed cases	12522	31425	74007	59068	60630	26055
Total	17236	31788	75024	59182	62111	29231

Source : *Agricultural Income Tax Records.*

In terms of total tax paid, the 20—25 hectare plantations are the most revenue yielding, while the smallest (10 to 15 hectares) and the largest units (40 to 50 hectares) among small planters are the lower revenue yielders.

On the basis of the data in the above table, the tax paid per acre by the different size units is compiled in Table 15.

TABLE 15—**Per Acre Tax Paid.**

	10 to 15	15 to 20	20 to 25	25 to 30	30 to 40	40 to 50
Total Units (Nos)	296	532	228	164	98	35
Total taxes Paid (Rs.)	12522	31425	74007	59068	60630	26055
Per acre tax (Rs.)	42.3	59.0	32.4	36.0	61.8	74.4

This table is somewhat revealing and disquieting. It shows that in effect the impact of the per acre tax is heavier on the two smallest size units (10 to 15 and 15 to 20 hectares) compared to the next two larger size plantations 20 to 25 hectares and 25 to 30 hectares. There is some evidence here of the regressive nature of the impact of income tax as far as the small planters are concerned.

If to the above, the excise tax and sales tax, etc. paid by the plantations are added, the impact of the total tax burden on small planters and its fluctuating character from year to year becomes a matter that requires review by an expert committee as a means of providing incentives to further their operational efficiency. The extent to which the tax burden is leading to diversion of plantations to the growing of garden and food grains crops also needs investigation. Table 16 summarises the general taxes paid by planters.

TABLE 16—**General Taxes inclusive of Excise, Sales tax, etc.**
(Rs. per hectare.)

Year	Taxes
1960-61	797
1961-62	649
1962-63	723
1963-64	673
1964-65	711
1965-66	907
1966-67	774
1967-68	776
1968-69	537
1969-70	561

CHAPTER 4

PROBLEMS

There are several problems confronting the small and medium plantation industry. Some are specific to holding size while others are generally applicable to all types of size groups. The general finding of this study is that the operational efficiency of small and medium plantations as measured by yield per acre or hectare and cost per acre or hectare is low and has been falling over the decade 1960-'70. The cause for this low and declining productivity of small and medium planters constitutes the problems that they face. These problems can be grouped under 4 or 5 main heads each faced by the small planters and the medium planters.

(A) Problems of Small Growers or Planters

There is first the group of problems arising from the diseconomies of the small scale of operations of the small planter. As noted in Chapter 2, the size of his holding makes impossible replanting of the bushes or trees and the continuous renewal of the plantation to counter the ageing and falling yield of the units. He has normally no machinery and facilities for processing his product and either uses rather primitive techniques with consequent loss of the final product or is at the mercy of intermediaries and the large planters who arrange the processing. To these are added transport and marketing problems. His access to the market is limited by the cost and lack of transport services available to him with the result that his small output is often sold at throwaway prices.

A second related set of problems are those in connection with finance, capital and credit availabilities. The small planters functioning on the margin of viability have no financial resources of their own for purchasing the necessary inputs in time, to make improvements in the plantation or marketing the

output. They seek and obtain financial assistance from money-lenders, mortgaging their smallholdings and paying very high rates of interest. As a consequence most of them are steeped in debt and banks regard them as high risk-clients.

The third problem centres around the lack of education and training of the small farmer. They are not aware of the modern and latest plantation techniques, use antiquated, traditional and wasteful materials and suffer considerable wastage in chemicals, fertilisers and other inputs. Lacking much education and basic management training, they do not maintain proper records and accounts making it difficult to assess precisely their production costs and advise them on improved plantation management.

Finally, the small planters face problems arising from lack of organisation. They act as small separate units and are not organised even to deal with such common problems as the use of processing machines, transport of produce to the market, their marketing problems and their urgent credit needs.

(B) Problems of Medium and Large Planters

The medium planters face a further set of problems hampering their operational efficiency.

First they face certain constraints in relation to the large planters. Their timely access to better seeds, fertilisers, pesticides and other inputs is limited. In the market, both international and internal, they face a severe competition in the prices for their product. Appendix 9 sets forth in tabular form what is called the " fixed price " and the paid price for green tea by the 8 co-operative tea factories in the State. Outside of these factories the price margins are much wider with the small and medium planter at the wrong end.

A second group of causes is the increasing capital-worker ratio and capital-land ratio of the plantation industry illustrated in Appendices 6 and 7, which bear heavily particularly on the medium planters. The capital per worker in the tea industry which was Rs. 2,636 in 1960 rose by 40 per cent to Rs. 3,686 in

1970. Similarly, the investment per hectare of land which was Rs. 5,653 in 1960 has risen to Rs. 8,215 in 1970.

A third problem is the escalating cost factor of the plantation industry due to general inflationary situation which also sends up the cost of living allowances, the mounting administrative expenses which in terms of estate management cost has risen from 4.15 per cent of total cost in 1960 to 5.28 per cent in 1968. To these should be added the many import and export restrictions that the industry faces and the complex procedures involved which puzzle the medium planter and lead sometimes in turn to sloppy and bad packaging for exports.

Further, drought conditions and the power cut in this State bear heavily on the turnover of the medium planter.

A further problem is the growing industrial unrest in the plantation industry. The State's tea and coffee production for 1973 and 1974 declined because of labour and management disputes. The mandays have affected adversely the productivity and viability of the medium planter.

Finally, the medium planter is also affected by problems of lack of credit including intermediate and long term loan capital for replanting, for replacing and modernising obsolete machinery and for effecting those improvements in the plantation on which the operational efficiency of the holding depends.

CHAPTER 5

RECOMMENDATIONS

In light of the problems discussed in the preceding chapter, and the foregoing discussion a programme to improve the efficiency of small and medium planters in Tamil Nadu is proposed. The programme involves action by the small and medium planters, by the plantation industry of the Southern States and by the government—both Union and State. But these can be achieved successfully only if the economic conditions of small planters are improved. Certain industries in the State suffer from a national inability to develop without any external stimulation or aid. One such industry is the plantation industry in Tamil Nadu. This analytical study brings out the following programmes to boost up the production and improve the operational efficiency of the plantation industry.

Action by Small and Medium Planters

Co-operation : The principle of co-operation should be extended, to the field of small and medium plantations. There are at present organisations like INCOSERVE, Coonoor, which assist small planters, but they are limited to those who hold 10 hectares and above, so that the small planters who hold areas below 10 hectares are unable to join and pool their lands to attain better yields. To promote cooperation among this group of planters, INCOSERVE might be re-organised to permit the cultivators who hold upto 10 hectares to join. Alternatively, such small planters might organise themselves into cooperative societies under which all of them can group their lands to achieve higher yields. This will increase the unit area of the plantation, help over many of diseconomies they now suffer and make it possible to apply scientific techniques of cultivation and to share the yield which will be more than the individual holding yield rates. Through such co-operatives better seeds and fertilisers to small planters can be made

available and many of their problems also solved. The Registrar of Co-operative Societies must make available a working capital of Rs. 20 lakhs for these societies.

Marketing : Both small and medium planters suffer from poor and inappropriate marketing techniques. It was noted in the preceding chapter that most of the small planters sell their products, that is, green leaves to bought-leaf factories and some sell these through local agents. Due to the existence of these intermediaries in the marketing field the returns of the small planters are low. Though the market rate is 0.85 paise per kilogram the agents pay the small planter only 0.30 per kilogram or 0.40 paise per kilogram. To remove such malpractices and impediments in the way of marketing and to reduce the disparities in the price, either the large planters or factories should make an agreement with small planters to buy their products or the small planters through the co-operatives referred to earlier should organise themselves to pool their stocks to sell them in the open market at a better price. And so, small planters should, with the help of the government and industry, raise Rs. 1 lakh per annum for improving their marketing channels.

MIXED CROPPING SYSTEM OR MULTIPLE CROPPING SYSYEM

Action by the Plantation Industry in the South : The plantation industry should set up an advisory service to advise small and medium planters on the system of land use. For many of them the present monocrop plantation is not viable. It should be possible for a well-designed mixed or multiple cropping system to be adopted. This calls for some R and D work to which reference is made later on which the Tamil Nadu and Karnataka Agricultural Universities may be of assistance.

Animal Husbandry Promotion : Similarly, the industry with the help of the State Government can assist the small planters with a programme of animal husbandry development. The plantations provide a good base for maintaining and

developing cross breed cattle and the sale of their products—milk, meat, hides and skins—can form a useful and significant supplementary income for the small planters. It may also have spin off effects in providing cheap and continuous power through Bio and Gobar Gas plants to the small and medium plantations in this power starved State and raise their operational efficiency.

Education and Training : Most of the small planters are uneducated and some are semi-literate. The industry with the educational grants of the State government should set up the educational (post-primary) and training (second level) institutions to provide small planters and their families with basic educational, agricultural and farming skills. Such educational and training programmes will improve their knowledge and help them to employ better plantation techniques to improve their yield and production. It will also spread the use of the application of scientific and modern techniques. Such a broad education and training programme must go beyond institutional instruction to include participation by small farmers in plantation seminars, discussion of research results through which they can acquire a fund of knowledge of the latest developments in the agro-plantation field. The indirect results may include mitigating the problem of exploitation by the intermediaries, small planters marketing their products themselves. The small planters will thereby acquire greater self-reliance and self-confidence.

The cost of this education and training programme is estimated annually at Rs. 50 lakhs for post-primary institutions and Rs. 10 lakhs for training courses and seminars. The educational costs should be met by the Department of Education and the training grants by the Department of Agriculture as provided in the State Perspective Plan. The planters' association, UPASI, should be responsible for organising this programme and large planters to assist the small planters by providing training on their fields in order to acquaint them with scientific and up-to-date techniques.

Organisation and Functional Management : Through the co-operatives, the organisational and functional management techniques should be developed for small and medium planters. It was earlier noted that small planters do not maintain proper records of their operational activities. They organise their estates in a haphazard manner without any defined goals. Management training seminars and training courses could be organised by the industry (UPASI), for small and medium planters to train them in plantation planning, record keeping, participation in co-operative activities and credit and financial operations. This would call for an annual expenditure of Rs. 1 lakh.

Action by Government

Development Credit : For small and medium planters, credit is the major problem. Unlike food crops, the plantation crops are cultivated in the hill areas, where there is little other development and where transport and marketing services are limited and non-existent in the remote areas. To develop a 5-acre plantation a capital sum of Rs. 40,000 is required, and to erect a small factory Rs. 2,00,000 are needed. Under such circumstances, the small and medium planters with little or no resources of their own need access to capital funds. Government should provide development credit of the order of Rs. 1 crore through agricultural co-operative societies. The nationalised banks should also extend their credit facilities to small planters. Further, the rate of interest for small planters should be lower than that charged to the medium and large planters. The differential interest rate principle which is in operation should be made applicable to the small planters.

Review of Taxation : As noted in Chapter 4, the impact of the total tax burden on small and medium planters needs review. The problems of their fluctuating character which introduce an element of uncertainty in the operations of small and medium planters, their regressive nature in bearing more heavily in fact on the smaller size units, their effect in reducing the reserves of these units for developmental investment, and the diversion from plantation to other forms of agricultural production need careful review. It is recommended that an

expert committee be set up by the government to examine the total tax burden on small and medium plantations and propose a system which will enhance the operational efficiency of these size plantations.

Special Revolving Fund for Land Development : Plantation crops have long gestation periods, for tea 5 to 6 years, coffee 4 to 5, rubber 6 to 7 years. The annual cost of rehabilitation and development of coffee plantations amounts to Rs. 15,000 per hectare. To improve and develop the land the planters need long term development loans. It is, therefore, recommended that the Agricultural Refinance Corporation establish Plantation Development Banks with a total loan capital of Rs. 1 crore to provide long term loans to small and medium planters to develop their plantation and improve their operational efficiency.

Research and Development : Like other industries, the plantation industry also is in need of research and development to test the nature of the soil, improve the techniques of processing and manufacturing and disseminate scientific knowledge among the planters. One need is to determine the optimum small holding for tea, coffee, rubber, etc. by conducting periodical soil testing and other experiments. Similarly, there is need to test continuously the different crops and their yields. On this basis, the small planters can be advised about the type of plants that could be planted to procure higher yields. A research and development department should act, thus, as an advisor on new techniques and also as an information bureau for small planters. Further, it can suggest new varieties of seeds, manures and other cultivating techniques. The cost of such a programme would be Rs. 25 lakhs per annum and should be part of the State's science and technology plan.

Planning and Operational Board : To control the activities and to direct the small planters as well as medium planters, there must be a Planning and Operational Board. This planning authority should study the nature of soil, climate variables, strength, efficiency of labour, management, crop

pattern and so on. Further, it should monitor the small planters' activities, the extent to which the advice given is followed, the method of cultivation used, etc. This board should act not only as the supervisory body but also provide advisory facilities to the needy planters. The members of the board should be planters. Only then can they exchange ideas, and formulate suggestions and recommendations to improve the efficiency of the planters. In addition, this board should suggest how much of capital is necessary to produce more. This authority can, as noted earlier, advise the small planters on how they should replant, apply the fertilisers, pesticides, the method of plucking and processing, etc. It should formulate certain rules and procedures regarding the quantum of exports and production. This authority should control the internal market prices, and must frame suitable policies and procedures for auction system in the markets. Thus, this board should act as a controller, adviser and supervisor for all activities of plantation industry.

APPENDIX 1—**Plantation Crops in Tamil Nadu : Tea Area**

Area as on 31st March	Hectares	+or−over previous year
1961	32,723	(+) 27
1962	32,750	(+) 182
1963	32,932	(+) 97
1964	33,029	(+) 178
1965	33,207	(+) 502
1966	33,709	(+) 234
1967	33,943	(+) 21
1968	33,964	(+) 434
1969	34,398	(+) 189
1970	34,587	

Source : *Report of the Task Force on Agriculture.*

APPENDIX 2—**South Indian Tea Production and Yield Rates of the Small, Medium and Large Estates**

Year	200 hect. & Above Production in '000 kg.	Yield kg/hec	50-200 hectares Production in '000 kg.	Yield kg./hec	5-50 hectares Production in '000 kg.	Yield kg./hec	Below 5 hectares Production and Yield
1960	53,576	1,130	13,564	906	2,623	415	
1961	54,905	1,132	14,841	1,035	1,752	335	
1962	51,852	1,059	13,619	979	1,913	365	
1963	61,786	1,261	14,852	1,070	2,356	452	
1964	57,140	1,157	13,052	977	2,071	388	Details
1965	65,751	1,329	14,674	1,094	2,008	381	Not
1966	66,830	1,358	13,616	1,008	2,016	381	Available
1967	63,645	1,303	13,292	992	2,392	441	
1968	64,810	1,333	11,706	921	2,149	390	
1969	67,232	1,411	14,560	1,097	1,927	344	
1970	70,626	1,470	14,542	1,166	2,243	394	

Source : *Tea Statistics.*

APPENDIX 3—**Yield Per Hectare: Tea** (kg./hectare)

District	1960	1970
Nilgiris	1,102	1,590
Gudalur	1,035	1,373
Kanyakumari	568	459
Tirunelveli	970	1,627
Coimbatore	1,341	1,786
Madurai	1,205	1,881

Source : *Commodity Boards.*

APPENDIX 4—**South Indian Tea**
(Area in Hectares)

Area as on 31st March of	Size-Groups of				
	Below 5 hectares	5 to 50 hectares	50 to 200 hectares	Above 200 hectares	Total
1960	5,064	6,254	15,427	47,121	73,866
1961	5,546	6,320	14,969	47,388	74,231
1962	6,211	5,229	14,336	48,484	74,260
1963	6,348	5,328	13,908	48,952	74,446
1964	6,391	5,231	13,880	49,001	75,503
1965	6,455	5,336	13,369	49,391	74,551
1966	6,750	5,273	13,408	49,467	74,898
1967	6,827	5,292	13,509	49,197	74,825
1968	6,829	5,426	13,397	48,829	74,481
1969	7,179	5,516	12,715	48,637	74,047
1970	7,197	5,604	13,271	47,661	73,733

Source : *UPASI*

APPENDIX 5—**Production of Tea in Tamil Nadu**

Year	Production ('000 kg)	Increase or decrease (in '000 kg) over previous year
1961	39,768	.....
1962	41,196	(+) 1,428
1963	44,721	(+) 3,525
1964	41,964	(−) 2,757
1965	47.343	(+) 5.379
1966	48,455	(+) 1.112
1967	46,837	(−) 1,618
1968	54,136	(+) 7,299
1969	52,108	(−) 2,028
1970	55,178	(+) 3,070
1971	55,983	(+) 805

Source : *Tea Board.*

APPENDIX 6—**Cost Structure of Tea**

(One Large and One Medium Sample Company in South India)

Years	Cultivation Expenses		Gathering Crops		Manufacturing Costs		Packing Charges		Selling Expenses		General Charges		Grand Total	
	L	M	L	M	L	M	L	M	L	M	L	M	L	M
1963-64	53.22	59.00	64.46	70.00	42.97	44.00	21.53	23.00	28.44	41.00	29.34	164.00	309.96	401.00
1964-65	51.17	65.00	67.17	61.00	42.99	45.00	21.79	23.00	26.55	67.00	92.36	160.00	302.03	421.00
1965-66	54.62	64.00	66.64	62.00	41.70	51.00	22.25	23.00	26.61	76.00	93.85	140.00	305.67	416.00
1966-67	63.31	55.00	74.11	63.00	41.66	54.00	22.97	28.00	27.04	85.00	101.94	144.00	331.03	429.00
1967-68	76.02	59.00	78.16	67.00	45.05	52.00	26.18	27.00	37.88	95.00	121.65	155.00	384.94	455.00
1968-69	80.56	61.00	79.99	68.00	46.83	55.00	28.26	30.00	42.41	67.00	128.01	98.00	406.06	379.00
1969-70	74.68	69.00	82.43	72.00	50.69	67.00	28.65	29.00	39.34	60.00	102.77	88.00	378.56	385.00
1970-71	83.32	78.00	97.03	82.00	56.13	54.00	33.89	32.00	39.84	76,00	113.84	93.00	424.05	415.00
1971-72	90.14	105.00	97.88	82.00	61.95	58.00	37.80	33.00	71.69	115,00	161.20	185.00	520.66	578.00

Source : *UPASI*

(The above figures are in Paise per kilogram.)

Note : L : Large
M : Medium

APPENDIX 7—**Investment Trends and Resources (Tea)** (Rs. per hectare)

	1960	Percentage	1970	Percentage
Land development	3010	53.25	5207	63.38
Buildings	1724	30.50	1522	18.53
Machinery	694	12.28	1154	14.05
Electrical Installation & Water Scheme	77	1.36	128	1.56
Furniture, Motor Vehicles, Fitting, etc.	125	2.22	162	1.97
Others	22	0.39	42	0.52
	Development cost for 60,000 hectares new plant 45,000 hectares Replant			60 Crores
	Tea Industries ratio of fixed cost to variable cost			52:48

Source : *Tea Board.*

APPENDIX 8—Details of Small Growers in Plantation Industry (esp. Tea)

Total number of holdings	9,000 to 10,000
Number of producers	356
Cultivated area	450
Average value of green leaf	0.85 Paise/kg.
Average gross earning	Rs. 2,890 per hectare or Rs. 13 lakhs.

Source : *UPASI Small Grower Development Information Bulletin.*

APPENDIX 9—**Price of Green Leaf in Tamil Nadu (April 1969 to March 1970)**

(In Paise per kg.) **(Tea)**

PLACE	April 1969		May 1969		June 1969		July 1969		August 1969		September 1969	
	F	P	F	P	F	P	F	P	F	P	F	P
Kundah	0.85	0.87	0.70	0.70	0.55	0.60	0.50	0.60	0.65	0.65	0.60	0.70
Kotagiri	0.80	0.75	0.55	0.62	0.50	0.46	0.50	0.73	0.65	0.63	0.55	0.56
Karumbalam	0.80	0.80	0.55	0.50	0.50	0.50	0.60	0.70	0.65	0.65	0.55	0.60
Kilkotagiri	0.80	0.80	0.55	0.58	0.50	0.55	0.60	0.72	0.65	0.60	0.55	0.58
Mercunad	0.75	0.75	0.55	0.55	0.55	0.60	0.60	0.60	0.65	0.65	0.66	0.60
Mahalinga	0.75	0.80	0.60	0.60	0.50	0.50	0.60	0.60	0.65	0.60	0.55	0.55
Manfoor	0.80	0.80	0.65	0.69	0.55	0.60	0.60	0.65	0.65	0.65	0.60	0.60
Ithalar	0.75	0.74	0.65	0.64	0.50	0.54	0.60	0.60	0.65	0.65	0.60	0.60

Foot Note : *F=Fixed Price*
P=Paid Price

Source : *Co-operative Tea Factories in India (Records of INCOSERVE)*

(Contd on p. 50)

(Contd. from p. 49)

PLACE	October 1969		November 1969		December 1969		January 1970		February 1970		March 1970	
	F	P	F	P	F	P	F	P	F	P	F	P
Kundah	0.70	0.70	0.60	0.70	0.60	0.70	0.70	0.78	0.85	0.85	0.80	1.00
Kotagiri	0.50	0.55	0.45	0.60	0.60	0.60	0.60	0.63	0.65	0.70	0.70	0.70
Karumbalam	0.70	0.60	0.45	0.60	0.60	0.60	0.65	0.65	0.70	0.70	0.75	0.75
Kilkotagiri	0.55	0.50	0.55	0.63	0.60	0.66	0.65	0.70	0.75	0.75	0.75	...
Mercunad	0.50	0.50	0.55	0.60	0.55	0.60	0.55	0.60	0.60	0.65	0.65	0.70
Mahalinga	0.70	0.65	0.55	0.55	0.55	0.68	0.50	0.55	0.60	0.70	0.75	0.70
Manfcor	0.70	0.70	0.60	0.65	0.55	0.65	0.55	0.70	0.75	...	0.75	0.85
Ithalar	0.55	0.60	0.50	0.60	0.55	0.60	0.55	0.65	0.75	0.75	0.70	0.80

Foot Note: *F = Fixed Price*
P = Paid Price

Source: *Co-operative Tea Factories in India (Records of INCOSERVE)*

APPENDIX 10—**Tea**

Year	Paid up Capital	Capital employed	Gross profit	Net profit	Price at Coonoor
			(Rs. per hectare)		
1960	3,918	8,264	1,677	880	.....
1961	3,955	8,288	1,390	741	.....
1962	3,958	8,474	1,363	640	.....
1963	3,955	8,642	1,403	730	4.17
1964	4,024	9,000	1,483	772	3.90
1965	4,053	10,114	1,828	921	3.82
1966	4,251	10,107	1,684	910	3.89
1967	4,498	10,312	1,672	896	4.97
1968	4,477	10,132	1,206	669	4.15
1969	4,415	11,276	1,203	642	4.29
1970	4,330	11,330	1,419	713	5.17
1971	4,271	11,364	1,184	570	5.57

Source : *UPASI Correspondence.*

APPENDIX 11

Statewise Average Yield of Tea in India (1970)

	(kg/hect)
Assam	1,195
West Bengal	1,126
Kerala	1,152
Mysore	1,523
Tamil Nadu	1,618
	1,191

Other Main Producing Countries in the World (1970)

	(kg/hect)
Ceylon	873
Indonesia	684
E. Africa	1,032
Formosa	808
Vietnam	675

Sources : *Tea Statistics - Task Force on Agriculture 1972-84.*

ITC Annual Bulletin - Task Force on Agriculture (1972-84)

APPENDIX 12—**Prices at London Auctions (Tea)**

Year	Internal Market Prices: Cochin Leaf	Cochin Dust	Coonoor	Annual Average Prices at London Auctions: North India Sh	North India D	South India Sh	South India D	Ceylon Sh	Ceylon D	Africa Sh	Africa D	All Teas (Per kg) Sh	All Teas (Per kg) D
1960	4.70	4.32	NA	10	10.49	8	9.09	11	0.03	7	9.76	10	2.14
1961	4.68	4.45	NA	10	3.44	8	6.27	10	2.36	7	10.89	9	9.20
1962	4.58	3.75	NA	11	1.60	8	1.25	10	3.30	7	1.87	9	10.61
1963	4.65	4.25	4.17	10	2.80	7	11.57	9	7.37	7	2.46	9	3.66
1964	4.75	4.42	3.90	10	0.42	8	5.12	9	10.72	9	4.67	9	5.43
1965	4.85	4.53	3.82	9	7.30	8	2.79	9	4.77	8	1.75	9	2.60
1966	4.80	4.51	3.89	9	6.95	7	6.48	9	4.17	7	8.73	8	11.72
1967	5.79	5.04	4.97	9	10.48	7	9.65	9	7.37	7	5.51	9	1.90
1868	5.26	4.67	4.15	8	11.28	7	9.17	9	0.69	8	1.18	8	8.56
1969	5.12	4.63	4.29	8	3.65	6	3.88	8	10.75	7	1.34	8	1.05

Source : *Special Meeting on Tea, UPASI, May 1970.*

APPENDIX 13—**Export of Tea 1960-1970**

Year	Production (Tons)	Exports (Tons)	Exports as % of Production
1960	321.1	193.1	60.1
1961	354.4	206.3	58.2
1962	346.7	211.8	61.1
1963	346.4	223.5	64.5
1964	372.5	210.5	56.5
1966	376.0	179.2	47.7
1967	384.8	213.7	55.5
1968	402.5	208.4	51.8
1969	396.0	168.7	42.6
1970	421.8	208.4	49.4

Source : *Quarterly Economic Report.*

APPENDIX 14—**Area and Production of Tea in Different Countries of the World**

Country	Area ('000 hectares)					Production ('000 tonnes)				
	1963	1964	1965	1966	1967	1963	1964	1965	1966	1967
India	334	338	342	345	...	346.4	372.1	366.4	376.5	378.7
Ceylon	238	240	241	242	...	219.8	218.5	228.2	222.3	224.1
China	190	190	190	190	...	158.8	158.8	158.8	158.8	...
Taiwan	36	35	35	35	35	21.1	18.3	20.7	21.5	21.2
Japan	49	49	49	48	...	81.1	83.3	77.4	83.1	83.5

Source : *Economic Survey of Asia and the Far-East, 1967.*

APPENDIX 15—**Total Quantity of Tea Exports of Different Countries in the World**

(In Million Kg.)

Country	1961		1965		1966	
	Quantity Exports	% total world exports	Quantity Exports	% total world exports	Quantity Exports	% total world exports
India	206.3	37.8	199.4	33.4	179.2	31.6
Pakistan	2.6	0.5	2.9	0.5	2.3	0.4
Ceylon	193.1	35.3	224.3	37.5	200.0	35.3
Indonesia	33.4	6.1	32.3	5.4	33.2	5.9
*East Africa	32.4	5.9	41.4	6.9	54.2	9.6
China	30.8	5.7	32.2	5.4	32.7	5.8
Formosa	14.6	2.7	20.1	3.4	19.7	3.5
Japan	7.7	1.4	4.6	0.8	1.9	0.3
Malaya	1.8	0.3	1.7	0.3	1.7	0.3

* *(Includes Kenya, Uganda, Tanzania and Malawi)*

(Contd. on p. 56)

(Contd. from p. 55)

Country	1967		1968		1969	
	Quantity exports	% total world exports	Quantity exports	% total world exports	Quantity exports	% total world exports
India	213.7	35.0	208.4	33.5	168.7	29.0
Pakistan	Nil	Nil	Nil	Nil	Nil	Nil
Ceylon	216.5	35.5	208.7	33.5	201.4	34.6
Indonesia	26.6	4.4	34.7	5.6	27.1	4.7
*East Africa	52.3	8.6	62.7	10.1	74.7	12.8
China	30.8	5.0	31.8	5.1	31.8	5.4
Formosa	10.1	3.1	18.4	3.0	21.3	3.6
Japan	1.7	0.3	2.0	0.3	1.6	0.3
Malaya	1.5	0.2	1.5	0.2	1.5	0.3

(includes Kenya, Uganda, Tanzania and Malawi)

Source : *Tea Statistics, 1969-70*; *Tea Board.*

APPENDIX 16—**Coffee (Districtwise Area and Production in Tamil Nadu)—Area (in hectares) Production (in lbs)**

	1960-61	1961-62	1962-63	1963-64
Salem				
Area	10,737	10,944	10,737	10,711
Area (plucked)	10,703	10,595	10,631	10,593
Production	1,634,047	1,610,926	1,629,428	1,490,710
Coimbatore				
Area	3,267	3,319	3,311	2,830
Area (plucked)	3,054	3,121	3,133	2,800
Production	2,208,832	2,056,448	1,632,352	1,951,897
Madurai				
Area	14,724	14,779	12,017	14,876
Area (plucked)	11,797	14,209	11,757	12,119
Production	302,793	1,157,649	1,171,965	1,146,579
Tirunelveli				
Area	1,804	1,157	646	646
Area (plucked)	720	1,138	646	627
Production	1,171,436	22,413	568,424	—
Nilgiris				
Area	14,693	—	—	N.A.
Area (plucked)	—	—	—	—
Production	12,331,146	—	—	N.A.
Kanyakumari				
Area	166	—	—	—do—
Area (plucked)	70	—	—	—do—
Production	5,516	—	—	—do—

(Contd. on p. 58)

(Contd. from p. 57)

1964-65	1965-66	1966 67	1967-68	1968-69	1969-70
10,571	10,504	10,861	11,255	11,346	11,810
10,480	10,370	10,536	9,045	9,046	8,602
1,545,842	1,503,018	1,838,597	1,431,784	1,817,750	1,524,250
2,646	2,680	2,589	1,090	888	902
2,587	2,549	2,426	991	801	817
2,416,913	1,344,446	3,131,357	513,733	766,584	602,341
15,709	13,804	15,809	14,610	15,781	16,876
14,106	11,776	12,827	11,597	8,159	8,852
2,539,080	2,123,280	2,272,872	2,214,182	1,450,408	1,410,943
646	646	509	516	545	489
627	557	444	417	486	364
—	—	927,029	1,347,109	754,708	277,446
—	17,181	17,813	17,626	17,630	18,305
—	16,235	16,792	16,052	16,533	17,234
—	2,429,601	1,170,000	1,129,000	1,202,000	1,223,900
—	189	155	124	116	122
—	104	120	94	89	91
—	8,608	7,460	3,748	3,241	3,409

Source : *Department of Statistics.*

N. A. = *Not available.*

APPENDIX 17—**Holdings—Coffee** (1967–68)

Size Group	Number	Hectares
Below 2 Hectares	6502	3,431
2 to 4 ,,	793	2,224
4 to 10 ,,	579	3,710
10 to 20 ,,	100	1,477
20 to 40 ,,	63	1,749
40 to 60 ,,	29	1,382
60 to 80 ,,	17	1,156
80 to 100 ,,	13	1,140
100 and above	30	5,880
Unclassified	1,129	1,032
	9,255	23,181

Source : *Coffee Board*–Task Force on Agriculture.

APPENDIX 18—**Area and Production of Coffee According to Size** (1965—66)

Size	Area (Hect)		Percentage (of area)		Production (Tons)		Percentage (of production)	
Below 5 acres	21,470		16.65		5,419		8.49	
5 and 10 ,,	13,763	65,596	10.67	50.86%	5,205	24,881	8.15	38.96%
10 and 25 ,,	21,622		16.76		9,119		14.28	
25 and 50 ,,	8,741		6.78		5,138		8.04	
50 and 100 ,,	11,164		8.66		6,015		9.42	
100 and 150 ,,	8,591	26,907	6.66	20.86%	5,068	15,236	7.94	23.86%
150 and 200 ,,	7,152		5.54		4,153		6.50	
200 and 250 ,,	6,353	32,823	4.92	25.44%	4,584	22,945	7.18	35.93%
250 and above	26,470		20.52		18,361		28.75	
Unregistered Estates	3,667		2.84		799		1.25	

Source : *Future of Indian Coffee.*

APPENDIX 19—**Coffee Yield According to Size Groups**

(In kg. per hectare)

Size Group	1959 - 60	1962 - 63	1965 - 66
Below 2 Hect	257.06	285.33	252.39
2 to 4 ,,	246.81	420.10	373.19
4 to 10 ,,	371.40	575.61	421.76
10 to 20 ,,	416.69	387.21	587.79
20 to 40 ,,	439.33	403.70	538.79
40 to 60 ,,	497.27	459.89	589.91
60 to 80 ,,	566.22	493.69	580.67
80 to 100 ,,	650.90	671.61	721.55
100 and above	589.07	518.92	693.65

Source : *Future of Indian Coffee.*

APPENDIX 20—**Coffee Production and Yield**

District	1957-58 Production (Tons)	Yield (Kg./hec) Arabica	Robusta	1968-69 Production (Tons)	Yield Arabica	(Kg./hec) Robusta
Nilgiris	2,068	205	228	2,065	195	471
Madurai	2,418	215	487	2,290	215	1,688
Salem	2,289	536	N.A.	2,330	583	N.A.
Coimbatore	987	854	511	1,245	866	1,597

Source : *Future of Indian Coffee.*

APPENDIX 21—**Internal Price of Coffee**

(Prices are given in Rs. per 50 kg. and inclusive of Central Excise Duty)

Year	Plantation A	Arabica Cherry AB	Robusta Cherry AB
1960	222.46	180.72	157.54
1961	229.45	189.27	152.94
1962	247.85	200.61	153.42
1963	247.19	210.73	176.78
1964	268.48	225.32	205.33
1965	270.32	235.87	231.17
1966	334.20	296.49	259.77
1967	313.50	274.50	226.75
1968	354.00	306.75	272.75
1969	337.50	282.75	269.25
1970	399.25	369.50	354.25

Source : *Coffee Statistics, 1964-65 & 1971-72.*

APPENDIX 22—International Prices of Coffee

Year	Brazil Santos Type 4		Columbia Mams		Uganda Native Standard	
	In US Cents per lb.	In Rs per 50 kg	In US Cents per lb.	In Rs. per 50 kg.	In US Cents per lb.	In Rs. per 50 kg.
1960	36.60	192.11	44.89	235.63	20.18	105.92
1961	36.01	189.02	43.62	228.97	18.48	97.00
1962	33.96	178.35	40.77	214.87	20.63	108.28
1963	34.11	179.12	39.55	207.68	27.68	146.24
1964	45.66	246.71	48.80	258.05	35.56	188.02
1965	44.71	236.42	48.49	256.38	31.12	164.54
1966	40.83	337.56	47.43	392.12	33.61	277.87
1967	37.82	312.67	41.94	346.74	33.51	277.04
1968	37.43	309.45	42.60	352.20	33.96	280.77
1969	40.76	336.98	44.99	371.96	33.17	274.23
1970	54.57	451.15	56.42	466.44	41.52	343.26

Conversion into Indian Rupees Calculated at Dollar/Rupee exchange rates ruling each year end.

Source : *Coffee Statistics, 1971-72.*

APPENDIX 23—**Exports of Coffee : 1960-61—1968-69**

Year	Production	Exports	Exports as % of Production
1960-61	68,169	32,271	47.3
1961-62	46,036	19,829	43,1
1962-63	56,217	22,411	39.9
1963-64	69,320	33,005	47.6
1964-65	60,901	23,003	37.8
1965-66	63,875 — E	28,843	45.2
1966-67	78,275 — E	35,074	44.8
1967-68	57,220 — E	29,755	52.0
1968-69	70,000 — E	32,000—D	45.7

E = Estimates ;

D = Quantity allocated for export.

Source : *Indian Journal of Agricultural Economics.*

APPENDIX 24—**Coffee**

1960	2711	6347	613	391
1961	2660	6290	382	216
1962	2597	5840	480	251
1963	2698	6236	808	369
1964	2730	6691	947	482
1965	2730	6879	1009	454
1966	2914	7368	1259	643
1967	2949	7316	890	449
1968	2932	7311	1013	473
1969	3060	7565	1004	501
1970	3186	8940	1683	748
1971	3437	8287	626	273

APPENDIX 25—**Holdings—Rubber** (1970-71)

Size Group	Number	Hectares
2 Hectares and below	1853	122
Between 2 and 4 Hectares	302	794
Between 4 and 6 Hectares	122	560
„ 6 „ 10 „	75	553
„ 10 „ 40 „	79	1211
„ 40 „ 200 „	24	1867
„ 200 „ 400 „	4	1036
„ 400 „ 600 „	3	1271
„ 600 „ 800 „	...	...
Above 800 hectares	1	1503
	2463	10015

Source : *Rubber Board—Task Force on Agriculture.*

APPENDIX 26—**Rubber in Tamil Nadu (Area in Hectares)**

Year	Holdings	Estates	Total
1960	1.491	4,017	5,508
1961	1,836	4,402	6,238
1962-63	2,147	4,429	6,576
1963-64	2,362	4,442	6,804
1964-65	2,405	4,818	7,223
1965-66	2,690	5,130	7,820
1966-67	2,952	5,130	8,082
1967-68	3,224	5,128	8,352
1968-69	3,389	5,859	9,248
1969-70	3,867	5,979	9,846
1970-71	4,056	5,959	10,015

APPENDIX 27—**Rubber in Tamil Nadu (Area in Hectares)**

Year	Total area under rubber (Hectares)	Tapped area under rubber (Hectares)	Production (Tonnes)	Yield per hectare (Kg.)
1960	5508	3305	2040	617
1961	6238	3421	2060	602
1962	6576	3901	2695	691
1963	6804	4319	3176	735
1964	7223	4678	3724	796
1965	7820	4721	3195	677
1966	8082	4812	3927	816
1967	8325	4908	4048	825
1968	9284	4958	4100	827
1969	9846	5339	4526	848
1970	10015	5673	4895	857

APPENDIX 28—**Average Yield Per Hectare—Rubber**

Year	Kg. per hectare
1960-61	617
1961-62	602
1962-63	691
1963-64	735
1964-65	796
1965-66	677
1966-67	816
1967-68	825
1968-69	827
1969-70	848

APPENDIX 29—**Prices of Rubber in Cochin, Singapore, London and New York**

(Price per 100 kg.)

Year	Cochin Rs.	Singapore Dollars	London £	New York $
1960	325	238.3	29.53	84.21
1961	325	184.2	22.74	65.31
1962	325	172.4	21.40	62.96
1963	325	159.7	19.99	57.89
1964	325	150.2	18.92	55.65
1965	360	154.4	19.70	56.64
1966	591	144.1	18.23	52.08
1967	410	119.2	15.89	43.88
1968	436	117.1	17.25	43.88
1969	545	153.9	23.10	57.75
1970	489	124.4	18.70	46.26

APPENDIX 30—**Prices (Rubber)**

Country	1961	62	63	64	65	66	67
Ceylon (Per lb.)	1·35	1·35	1·27	1·18	1·21	1·18	N.A.
Indonesia (Per 100 Kg.)	2·67	2·54	2·42	N.A.	N.A.	N.A.	N.A.
Singapore (incents per lb.)	83·54	78·20	72·42	68·14	70·02	65·3	49·20
U.K. (Pence per lb.)	24·50	23·00	21·40	20·20	20·80	19·5	15·10

Source : *UPASI Information.*

APPENDIX 31—Area under Plantation Crops in Tamil Nadu

District	Tea		Coffee		Rubber	
	1956-57	1967-68	1957-58	1967-68	1956-57	1957-68
Anaimalai	10,283	10,097	1296	1,173	74	221
Kanyakumari	450	481	...	72	2,696	7,681
Madurai	443	925	10,536	9,034	165	153
Nilgiris	18,804	22,008	9,939	8,681	713	245
Nilgiri-Wynaad	...	...	...	...	140	...
Shevaroys	...	...	4,672	3,999	...	23
Tirunelveli	365	453	...	222	...	29
	30,345	33,964	26,038	25,713	3,212	8,352

Source : *Commodity Board Statistics—Report of the Task Force on Agriculture (1972-'84)*

APPENDIX 32—**Agricultural Income Tax (Total)**

Year	Tea (Rs.)	Coffee (Rs.)
1961-62	6583072	N.A.
1962-63	5670789	N.A.
1963-64	6573609	N.A.
1964-65	5840495	982643
1965-66	6080113	1318378
1966-67	9025621	1321930
1967-68	8280570	1291672
1968-69	8737603	1552306
1969-70	7903734	4163453

Source : *Perspective Plan for Tamil Nadu—Task Force of Agriculture Ociober 72 ; Vol. I*

APPENDIX 33—**Production of Plantation Crops**

District	Tea		Coffee		Rubber	
	1957	1971	1957-58	1970-71	1957	1969-70
Anamalai	12718	18289	987	1330	...	...
Kanyakumari	241	247	...	...	1847	5339
Madurai	585	1728	2418	2860	...	...
Nilgiris	17994	34692	2068	3195	...	...
Shevaroys	...	...	2289	2545	...	...
Tirunelveli	300	855	...	...	...	...
	31,888	55,811	7,762	9,930	1,847	5,339

Source : *Commodity Board Statistics—"Task Force on Agriculture".*

APPENDIX 34—**Yield Per Hectare According to Districts**

District	Tea		Coffee		Rubber	
	1960	1970	1960	1970	1960	1970
Nilgiris	1102	1590	161	368	...	...
Gudalur	1035	1373	161	368	...	...
Kanyakumari	568	459	20	N.A.	617	830
Tirunelveli	970	1627	...	...	...	...
Coimbatore	1341	1786	680	1134	...	—
Madurai	1205	1881	127	309	...	...
Salem	...	...	579	636	...	...
	1160	1618	245	428	617	830

Source : *Report of the Task Force on Agriculture 1972-'84, Vol. I.*

APPENDIX 35—**Cardamom Production (in tonnes)**

Year	Quantity
1967-68	2,400
1968-69	2,100
1969-70	2,300
1970-71	3,170
1971-72	3,875
1972-73	2,510
1973-74	2,585
1974-75	2,600

Source : *UPASI.*

APPENDIX 36—Trend in Area, Production and Productivity of Cashewnut

Year	Area in hectares	Production in M.T.	Productivity kg. per hectare
1965-66	45,047	21,800	484
1966-67	42,279	20,510	455
1967-68	44,788	20,480	455
1968-69	44,788	21,007	468
1969-70	51,500	27,420	537
1970-71	51,500	27,420	537

Source : *Report of the Task Force on Agriculture, Vol. I.*

APPENDIX 37—Export of Cashew Kernels from Tamil Nadu to Foreign Countries

Year	Quantity (kg.)	Value (Rs.)
1960-61	6,19,000	30,32,000
1961-62	3,00,000	13,71,000
1962-63	4,21,000	16,81,000
1963-64	77,000	3,35,000
1964-65	3,14,458	16,62,619
1965-66	2,31,049	13,73,256
1966-67	3,82,699	27,20,307
1967-68	2,22,461	20,37,417
1968-69	2,73,946	27,89,558
1969-70	2,66,203	33,41,878

Source : *Task Force on Agriculture, Vol. I.*

APPENDIX 38—**Profitability Txends of 15 Above Average Companies** (Rupees per hectare)

	1950	1955	1960	1965	1970
Gross sales	3,610	4,977	6,888	8,545	9,980
Estate costs	2,248	3,622	5,211	6,717	8,561
Gross profits	1,362	1,355	1,677	1,828	1,419
Taxes	373	537	797	907	706
Net profits	989	878	880	921	713
Gross profits as a % of sales (percentage)	37.74	27.22	24.34	27.22	14.22
Gross profit as a % of 'K' employed (percentage)	24.20	18.82	20.29	18.08	12.53
Net profit as a percentage of net work.	23.21	14.43	13.33	11.16	7.74

Source : *UPASI.*

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